

Supporting Information

Efficient Strategy to Increase the Surface Functionalization of Core-Shell Superparamagnetic Nanoparticles using Dendrons Grafting

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Characterizations. The ^1H , ^{13}C and ^{31}P NMR spectra were recorded using the following spectrometers: A Bruker DPX 200 FT NMR spectrometer (^1H : 200.16 and ^{13}C : 50.33 MHz), a Bruker AC 250 FT NMR spectrometer (^1H : 250.13 and ^{13}C : 62.90 MHz) and an Avance 300 FT NMR spectrometer (^1H : 300.13 and ^{13}C : 75.46 MHz). The elemental analyses were performed with ThermoFischer Flash EA1112. Thermogravimetric analyses (TGA) were done on dried samples under argon atmosphere with a heating rate of 5 °C/min on a Netzsch STA-409 C/CD. Transmission Electron Microscope Images (TEM) images have been obtained on Cu/C supports on a JEOL JEM 2000FX electron microscope operated at 200 kV. Confocal microscopy analyses: Nanoparticles have been diluted in ultrapure water and deposited on 8-well Labteck plates (Nalc Nunc International). Images have been collected on a Leica TCS SP2 AOBS microscope (Leica Microsystems, Heidelberg, Germany) with an HCX PL APO CS 63.0 x 1.40 oil objective at room temperature. The following microscope settings have been applied: 0.1 mL of a diluted (1/10) sample solution of FITC-nanoparticles were excited with the 488 nm laser line (intensity set at 30% of maximal power) and their emission observed between 500 and 545 nm (pinhole 1.00 airy). Photomultipliers detectors voltage values have been set as hereafter: the threshold values (offset) have been adjusted with the Q-LUT mode and the maximal signal amplification value (gain) was determined on a sample containing non-fluorescent nanoparticles. Flow cytometry measurements: Nanoparticles have been diluted in ultrapure water before analysis. Flow cytometry histograms have been recorded on a Cytomics FC500 instrument (Beckman Coulter, Fullerton, USA). The magnetic susceptibility measurements have been obtained with the use of a Quantum Design SQUID magnetometer MPMS-XL. This magnetometer works between 1.8 and 400 K for dc applied fields ranging from -7 to 7 T. Measurements have been performed on finely ground crystalline samples of 6.89 and 4.75 mg for **D1** and **D2**. The magnetic data have been corrected for the sample holder and the diamagnetic contribution.

Figure S1. Images (48 x 48 μm) of aggregate sample observed by confocal (left) and optical (right) microscopy. Grafting conditions are reported in Table 1, entry 9.

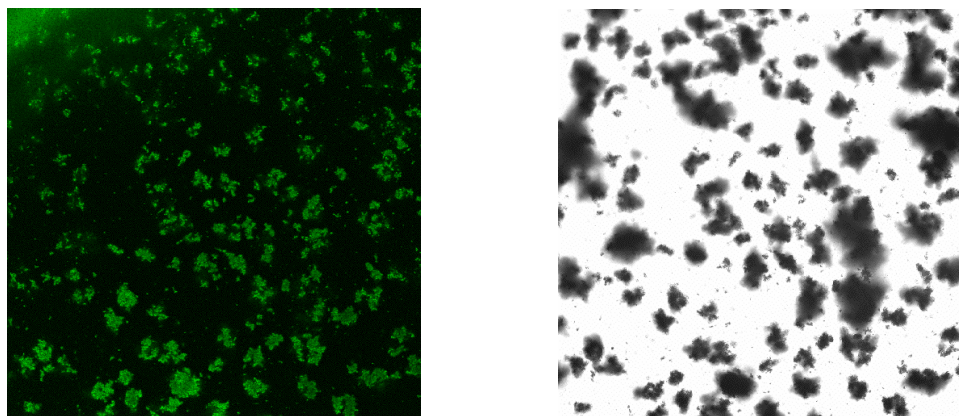


Figure S2. the magnetization curves of **D2** dendrons grafted $\gamma\text{-Fe}_2\text{O}_3$ Carboxyl-Adembeads 300 nm nanoparticles (synthesized respectively as described in table 1, with $0.15 \mu\text{mol D2/ mg particles}$) :

